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The following gentlemen were elected Fellows of the Academy: —

Charles Eliot Norton of Cambridge, in Class III., Section 4.

Ephraim W. Gurney, of Cambridge, and Rev. Horatio B. Hackett, of Newton, in Class III., Section 2.

The following were chosen Associate Fellows: —

Dr. F. A. P. Barnard, President of the University of Mississippi, in Class I., Section 3.

Professor John Le Conte, of Columbia, South Carolina, in Class I., Section 3.

Dr. J. W. Dawson, Principal of McGill College, Montreal, in Class II., Section 1.

Professor W. D. Whitney of Yale College, in Class III., Section 2.

The following were elected Foreign Honorary Members: —

Professor Dové, of Berlin, in Class II., Section 1.

Professor Albrecht Kölliker, of Würtzburg, in Class II., Section 3.

Von Rauch, of Berlin, in Class III., Section 4.

Four hundred and eighty-ninth meeting.

December 11, 1860. — Monthly Meeting.

The President in the chair.

Letters of acceptance were read by the Corresponding Secretary from Charles E. Norton, Ephraim W. Gurney, Professor John Le Conte, and Principal J. W. Dawson, elected into the Academy at the preceding meeting.

Professor Sophocles read the following communication: —

On some Magnesian and Pagasetic Inscriptions.

Last June, while at Tsangarádha (ἡ Τσαγγαράδα), a village situated on the eastern slopes of Mount Pelion, and belonging to the district of Volo, I received from Mr. Arghíris Philipídhis (Ἀργύρης Φιλιππίδης) copies of two ancient Greek inscriptions, found, as he informed me in a letter, at Miliés (ἡ Μηλιές), another village of the same district. This gentleman is very familiar with the topography of the south-western slopes of Pelion.

One of these inscriptions was discovered, according to him, forty years ago, at Búpha (ἡ Μπούφα), a place in the immediate vicinity of Good Waters (τὰ Καλὰ Νερά), on the shores of Miliés. It formed part of the holy table (ἡ ἁγία τράπεζα) of a dilapitated church at that place.

*Inscription of Búpha.**

. . . .

ἀνιεὶς ἱερεῖα τέλεια λευκὰ ὁλόκληρα
θύ]εσθαι τῷ θεῷ καὶ τὰ ἄλλα τὰ ἐθιζόμενα καθὼς . . . .
ἐ]γίνετο· τὰς δὲ τούτων δορὰς πωλεῖσθαι ἀπὸ τοῦ . . .
κα]τ' ἐνιαυτὸν ὑπὸ κήρυκα τῇ ἕκτῃ ἐπὶ δέκα τοῦ ἀρτεμί-
ου μη]νὸς πρὸ τῆς ἐκκλησίας τῆς γενομένης ἐννόμου ἀπὸ τοῦ
. . . μου ὑπὸ τῶν προγεγραμμένων ἀρχόντων, συμπαρόντων καὶ τ[οῦ
ἱερέ]ως τοῦ Διὸς τοῦ ἀκραίου καὶ τῶν ἐξεταστῶν καὶ τὸ ἐκ τούτων
συν]αγόμενον διάφ[ορον . . .] παρὰ τῷ ἱερεῖ τοῦ Διὸς τοῦ ἀκραίου.

. . . .

From the expression τοῦ ἀρτεμισίου μηνός one might be tempted to refer the inscription to the Alexandrian period. But it may with equal confidence be referred to the Roman period. For although the Roman calendar began to be adopted by the Greeks as early as the first century,† the Macedonian mode of dating had not become obsolete even as late as the second century of the Christian era. Thus, the names of some of the Macedonian months occur in the Apostolical Canons and Constitutions.‡

As to the expression τοῦ Διὸς τοῦ ἀκραίου, it is to be recollected that by θεοὶ ἀκραῖοι, *the gods of the citadel*, the Greeks meant the gods whose temples were in the citadel.§ And as every important city had its citadel, it is natural to suppose that it had also its θεοὶ ἀκραῖοι.

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* Αὕτη ἡ ἐπιγραφὴ ἀνεκαλύφθη ἐν τῇ κατὰ τὴν Βούφαν παλαιοεκκλησίᾳ. ARGHÍRIS PHILIPÍDHIS.

† See GLOSSARY of Later and Byzantine Greek, v. πρό 2.

‡ CAN. APOST. 37. CONST. APOST. 5, 14, 1. 5, 17, 2.

§ POLLUX, 9, 40 Ἀκρόπολις, ἣν καὶ ἄκραν ἂν εἴποις καὶ πόλιν, καὶ τοὺς ἐν αὐτῇ θεοὺς ἀκραίους καὶ πολιεῖς. ECKHEL, 2, p. 504 Θεοὶ ἀκραῖοι, on Mytilenian coins.

Ζεὺς ἀκραῖος is found on Smyrnæan coins[*] and in a Smyrnæan inscription.[†] And according to Dicæarchus there was a temple of Ζεὺς ἀκραῖος on the highest peak of Mount Pelion,[‡] that is, on what is now called Pliasídhi[§] (τὸ Πλιασίδι), or *the mountain of Portariá* (τὸ βουνὸ τῆς Πορταριᾶς). Now, as this inscription was found in the vicinity of this peak, it is natural to suppose that its Ζεὺς ἀκραῖος is identical with the Ζεὺς ἀκραῖος of Dicæarchus.

The other inscription, according to the same gentleman, was discovered last spring at Zerbhókhia (ἡ Ζερβόχια), in the township of Nekhóri (τὸ Νεχώρι). It was dug up by an ignorant person who was losing his time in searching for ancient hidden treasures. Near the spot where it was found there was a tomb containing human bones. The marble is now to be seen at Bizítsa (Βιζίτζα), a small village not far from Miliés.

Inscription of Zerbhókhia.[||]

Ἐν ταύτῃ τῇ θήκῃ οὐκ ἔξεστιν οὐδέ[ν' ἄλ-
λον, οὔτε ἄνδρα οὔτε γυνέκα (sic) ταφῆ[ναι.
Ἐὰν δέ τις ἀπονοηθεὶς τολμήσει [ἀνοῖ-
ξε (sic), ἕξι (sic) κεχολωμένον βασιλέα [θεὸν
μέγιστον παντοκράτορα κτίστ[ην
ὅλων καὶ θεοὺς πάντας καὶ θε[ὰς καὶ
ἥρωας καὶ αὐτὴν τὴν δέσποιν[αν
βασιλίδα, διὰ τὸ ἅπαξ ἀπηγορε[ῦσθαι
ἕτε]ρον σῶμα μετὰ τούτων τεθῆ[ναι.

Translation.

No other corpse, whether of a man or of a woman, is permitted to be deposited in this vault. And if any one shall recklessly dare to open it, he will anger the most great [god] the king, the almighty maker of

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[*] Eckhel, 2, p. 508.

[†] Inscr. 3146.

[‡] Dicæarch. Descript. Græc. 2, 8 Ἐπ' ἄκρας δὲ τοῦ ὄρους κορυφῆς σπήλαιόν ἐστι τὸ καλούμενον Χειρώνιον, καὶ Διὸς ἀκραίου ἱερόν.

[§] Πλιασίδι, ιοῦ, τὸ, is the modern double diminutive of Πήλιον, but without its diminutive sense. It is formed as follows: Πήλιον, Πηλιάσιον (analogous to κοράσιον), Πηλιασίδιον, (analogous to κορασίδιον), Πλιασίδιον, and by omitting the ending -ον, Πλιασίδι, pronounced in three syllables; thus, Πλια-σί-δι.

[||] Ἡ ἐπιγραφὴ αὕτη εὑρέθη κατὰ τὴν Ζερβόχιαν. Arghiris Philipidhis.

all things; and [he will anger] *all the gods and goddesses and demigods, and the lady queen herself. For the depositing of any other corpse* [together] *with these is forbidden once for all.*

Here it is impossible not to see that the maker of all things is the Hebrew god, and that he is classed with the gods of the heathens. Now in order to understand this apparently incongruous medley of Judaism and Heathenism, it is to be borne in mind that even before the commencement of the Christian era many of the Gentiles of Western Asia, especially the women, adopted the religion of Moses.* Sober-minded and austere people, it would seem, preferred Jewish morality to heathen licentiousness. Circumcision was not required of the converts at first. The stricter of the Jews, however, regarded it as one of the essentials of religion.† Proselytes to Judaism were called by the Greek Jews οἱ Ἰουδαΐζοντες, *Judaïzers*, οἱ σεβόμενοι τὸν θεόν, or simply οἱ σεβόμενοι, *the worshippers of god*, that is, of the god of the Jews.‡ Among these converts, it is natural to suppose, there were some who, although willing to venerate and even to give the precedence to the god of the hated and despised nation, were by no means ready to admit that he was the only god in existence. They could not see why the addition of a barbarian god to the received list rendered it necessary for them to discard the gods of their forefathers. And such seems to have been the author of the Magnesian inscription before us. People of this liberal tendency are not wholly unknown in the East even now. Thirty years ago there was a Mussulman in Cairo who believed that Christ was as good as Mohammed. His Greek friends, who could not conceive of religious sincerity unaccompanied by intolerance, applied to him the epithet θεομπαίχτης (from θεός, ἐμπαίζω), *the mocker of God.* It is hardly necessary to mention here the case of the Emperor Alexander Severus, who seriously thought of erecting a temple to the new god Christus.[*]

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* JOSEPH. Ant. 20, 2, 1 Τῶν Ἀδιαβηνῶν βασιλὶς Ἑλένη καὶ ὁ παῖς αὐτῆς Ἰζάτης εἰς τὰ Ἰουδαίων ἔθη τὸν βίον μετέβαλλον. Ibid. 20, 2, 3 et seq. Bell. Jud. 2, 20, 2 Ἐδεδοίκεσαν δὲ [οἱ Δαμασκηνοὶ] τὰς ἑαυτῶν γυναῖκας ἁπάσας πλὴν ὀλίγων ὑπηγμένας τῇ Ἰουδαϊκῇ θρησκείᾳ. 7, 3, 3 Ἀεί τε προσαγόμενοι ταῖς θρησκείαις πολὺ πλῆθος Ἑλλήνων, καὶ ἐκείνους τρόπῳ τινὶ μοῖραν αὐτῶν πεποίηντο.

† N T. Act. 15, 1. 16, 1 seq. JOSEPH. Ant. 20, 2, 4, Izates is circumcised. TACIT. Histor. 5, 5.

‡ N T. Act. 13, 43. 50. 17, 4. 17. 18, 7. JOSEPH. Ant. 14, 7, 2 Πάντων τῶν κατὰ τὴν οἰκουμένην Ἰουδαίων καὶ σεβομένων τὸν θεόν. Bell. Jud. 2, 18, 2 Τοὺς ἰουδαΐζοντας εἶχον ἐν ὑποψίᾳ.

With respect to the god of the Jews, the Greeks called him *Iao* ('Ιαῶ, rarely 'Ιάω, a word representing approximately the pronunciation of יהוה in the first century before Christ), and regarded him as one of the many gods of the universe. There is no evidence that they identified him with any of their known gods. Thus, Diodorus of Sicily, in speaking of the Jews, says that Moses, their lawgiver, received his laws from the god *Iao*,[†] so called. It would seem further that heathen magicians made use of 'Ιαῶ in their incantations, together with other appropriate divinities.[‡] Strabo's knowledge on the subject of the Hebrew god was very imperfect. He asserts that Moses taught the Jews that *god* was identical with *nature;* that is, he makes the greatest of the Jewish prophets a teacher of pantheism.[§]

Josephus, however, in his fabulous account of the miraculous translation of the Hebrew books into Greek, represents a learned Alexandrian as saying to Ptolemy Philadelphus that the god of the Jews was identical with the Hellenic Zeus. And in an oracle forged by some Judaizing Greek, *Iao*, the most high god, appears as *Aïdes* or *Hades* in the winter, as *Zeus* in the spring, as *Helios* (*Sun*) in the summer, and as *Iacchus* in the autumn.[||] This is another species of pantheism.

But who is the *Lady Queen* of the inscription? Were we to adopt the practice of the most popular interpreters of the Bible, namely, to transfer the floating notions of the present day to the past, we should at once affirm that she can be no other than the Virgin Mary. This, however, would bring the date of the inscription down to the sixth century; for the epithet δέσποινα did not begin to be applied to the Deipara long before the Justinian age. And it may be said that, as Justinian was the professed exterminator of the ancient religion of Greece and Rome, it would not have been safe for any one of his subjects to profane the name of the god of the emperor, by putting it in juxtaposition with the gods of the heathens. It must be added here, that this epithet began to be given to the empress as a title about the same period. But it is not easy to believe that the *Lady Queen* of the inscription refers to the emperor's wife. She must have been a goddess.

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[*] LAMPRIDIUS, Alex. Sever. 29 In larario suo (in quo . . . Christum, Abraham, et Orpheum et hujusmodi deos habebat). Ibid. 43 Christo templum facere voluit eumque inter deos accipere.

[†] DIOD. 1, 94.

[‡] INSCR. 5858, *b*, *Δαίμονες καὶ πνεύματα . . . . ἐξορκίζω ὑμᾶς τὸ ἅγιον ὄνομα . . .* 'Ιαῶ *. . . ὁ τῶν ὅλων βασιλεὺς ἐξεγέρθητι* [*καὶ*] *ὁ τῶν φθιμένων βασιλεὺς . . . μετὰ τῶν καταχθονίων θεῶν.* See also IREN. 1, 4, 1.

[§] STRAB. 16, 2, 35 Εἴη *γὰρ ἂν τοῦτο μόνον θεὸς τὸ περιέχον ἡμᾶς κ.τ.λ.*

[||] MACROBIUS, 1, 18 *Φράζεο τῶν πάντων ὕπατον θεὸν ἔμμεν* 'Ιάω, *Χείματος μέν τ'* 'Αΐδην, *Δία δ' εἴαρος ἀρχομένοιο,* 'Ηέλιον *δὲ θέρευς, μετοπώρου δ' ἁβρὸν* 'Ιάω. The last word is obviously a mistake. The true reading seems to be "Ιακχον, the god of autumn when *wine* begins to be abundant. Lobeck's emendation "Αδωνιν is not tenable.

It may be supposed also that she is the same as *Isis*, the great goddess of Egypt. Her worship indeed was quite fashionable in Greece during the Roman period, and her name appears in connection with Sarapis, Anubis, and Harpocrates, in several of the Delian inscriptions;* but I am not aware that the Greeks ever designated her by the appellation *the Lady Queen.*

Pausanias informs us that *the Lady* (ἡ Δέσποινα) was the daughter of Poseidon and Demeter. This distinctive epithet was analogous to *the Maid* (ἡ Κόρη), the popular name of *Persephone* or *Persephoneia*, the daughter of Zeus and Demeter. Pausanias is prevented by his religious scruples from disclosing her real name to the uninitiated. He only states that Δέσποινα bears the same relation to this mystical divinity, that Κόρη does to Περσεφόνη. This *Lady* was the favorite goddess of the Arcadians.† And if we assume that she is identical with the *Lady Queen* of the inscription, it is natural to infer that her worship was not confined to Arcadia.

On the walls of the church of Saint Nicholas (ὁ Ἅγιος Νικόλαος), near what is called, by courtesy, *the Fort of Volo* (τὸ Κάστρον τοῦ Βόλου), I found the following sepulchral inscriptions. The slabs had been brought from the ruins of Pagasæ, in the vicinity of said fort. With one exception they contain nothing but proper names and adjectives derived from proper names. I copied them in conformity with the philological canon that no ancient writing should be suffered to perish.

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* Inscr. 2293. 2295. 2302.

† Paus. 8, 37, 9 (6) Ταύτην δὲ μάλιστα θεῶν σέβουσιν οἱ Ἀρκάδες τὴν Δέσποιναν, θυγατέρα δὲ αὐτὴν Ποσειδῶνός φασιν εἶναι καὶ Δήμητρος. Ἐπίκλησις εἰς τοὺς πολλούς ἐστιν αὐτῇ Δέσποινα, καθάπερ καὶ τὴν ἐκ Διὸς Κόρην ἐπονομάζουσιν, ἰδίᾳ δὲ ἐστιν ὄνομα Περσεφόνῃ, καθὰ Ὅμηρος καὶ ἔτι πρότερον Πάμφως ἐποίησαν. Τῆς δὲ Δεσποίνης τὸ ὄνομα ἔδεισα εἰς τοὺς ἀτελέστους γράφειν. For this unwillingness to reveal the true name, compare Her. 2, 170 Εἰσὶ δὲ καὶ αἱ ταφαὶ τοῦ οὐκ ὅσιον ποιεῦμαι ἐπὶ τοιούτῳ πρήγματι ἐξαγορεύειν τοὔνομα ἐν Σάϊ.

Pagasetic Inscriptions.

ON THE NORTH WALL.

1.

Ἀπολλωνία
Ἀρχιμένους
γυνή.

2.

Σῶσος
Σώσιος
Νάξιος.

ON THE WEST WALL.

. . . . .
Ἀλεξάνδρου
Ἡρακλεῶτις.

ON THE SOUTH WALL.

1.

Διογένης
Ἡρακλείδου
Μακεδών.

Ἦ ῥα ποθεινὸς πᾶσιν ἔβης δόμον Ἄϊδος οὔπω
Εἴκοσ᾽ ἐτῶν, μῆνας δ᾽ ἓξ ἔτι λειπόμενος,
Διόγενες· γένος ΔΕ ΛΥΓΙ. ΝΣΤΥΓΙ. ΝΤΕΓ. ΝΕΥΣΙ
Κάλλιπες ἀΐδιον ΓΗΡΛΙΤ . . . MEN
Ἀλλ᾽ [ο]ὐκ ἔστι τύχην προφυγεῖν καὶ δαίμονα ΝΗΤ
Οὐδὲ παρώσασθαι Μ.ΙΣΙΜ..Ν..Ι τὸ χρε[ών.

2.

Αἰσχίνου.

3.

Κλεοπάτρα
Στησιμένους
Πελλαία.

ON THE THRESHOLD OF THE SOUTH DOOR.

Μύλλις
Θεοκρίτου
γυνή.

Professor Jeffries Wyman, exhibiting a stereoscopic view of the skeleton of a double human fœtus, discussed the question of the mode of origin of such monstrosities, and insisted that they never arose from actual coalescence of two individuals, but from the more or less extensive longitudinal division, or rather bifurcation, of the primitive stripe of the ovum, with which the development of the embryo begins. He was thus led to consider the question of individuality, and to maintain the ground that, since the two bodies or parts of bodies were not formed by the coalescence of two originally distinct primitive stripes, therefore they were to be regarded as one individual, even in a case so extreme as that of the Siamese twins.

This view was criticised by Professors Parsons, Bowen, and Gray, the latter assenting to this view of the origination of such double individuals, as agreeing with the chorisis or similar doubling of organs in the vegetable kingdom; but insisting that to call the Siamese twins one individual was a practical *reductio ad absurdum* of that idea of individuality, and that individuality should be considered as of complete or incomplete realization; e. g. that a bicephalous monster was the result of an incomplete development, the Siamese twins, of an essentially effectual development of two individuals out of the foundation of one, or in the normal place of one.

Dr. C. Pickering submitted a statement relative to the geographical distribution of species, viz.: —

That his experience as a naturalist had led him to the conclusion, that the main limiting cause in the diffusion of species is to be found in the envelope of the ovum; in other words, the shell of the ovum governs the diffusion of species.

When the shell of the ovum breaks before exclusion, as in animals called viviparous, the species cannot be diffused by means of ova.

Other organic beings capable of locomotion are diffused both by ova and the wandering progeny; but plants are diffused exclusively by ova.

Change the order of Nature; let the ova of insects be all borne about by the winds and waves, and insects would disappear from the planet:

Or fasten the seeds of plants, hide them away in the select situations in which insects deposit their ova; and plants in their turn would in the end become extinct.

At some future day, when the envelope of ova shall have received more attention from naturalists, the ovum alone may probably be found to point out, with very considerable accuracy, the geographical distribution."

Professor Gray made some critical remarks, suggesting that

The problem of determining the geographical distribution of a species from the condition of its ovum or seed might be expected to transcend human powers in any supposable state of our knowledge of the latter, even if the principle announced were theoretically admissible to the full extent. Aptitude for dissemination was one element, but only one out of several. That it was by no means always the determining element, at least in the vegetable kingdom, might be inferred from the fact, that, while as a whole the seeds of the vast order Compositæ were endowed with unusual facilities for dispersion, the species on the whole were not at all remarkable for wideness of range, but rather the contrary; and, what seemed more paradoxical, Dr. Hooker had shown that (at least in some parts of the southern hemisphere) those Compositæ provided with a downy pappus, like that of *Senecio*, were in general more restricted in their actual geographical range than those destitute of a pappus. The vast genus *Senecio* has a downy pappus in all its species; but although the genus is cosmopolite, the species appear to be more than usually restricted, each to one district.

Professor Bowen made some observations upon *Instinct.* He remarked that there are three distinct questions concerning this faculty, which need to be carefully distinguished from each other.

1. What are the characteristics of Instinct?
2. What is the relation of Instinct to Intellect properly so called, — that is, to human Intellect, — and is the difference in kind or only in degree?
3. Whether Instinct and Intellect are ever conjoined, or found to exist together in the same being, either in the brute or in man.

The answer to these last two questions has been confused, or rendered difficult, chiefly because the answer to the first has been left vague and indeterminate. So long as the word Instinct is vaguely used to designate *all* the mental endowments of the brute, be they what they may, — and so long as the word Intellect is used with equal vagueness to designate all the mental endowments of man, be they what they may, — so long it will be impossible to draw a sharp line of distinction between the two, or to say that the two are never conjoined in the same being.

What, then, are the mental endowments which belong in common to man and the brute, but which are not entitled to be called either Instinct in the one case, or Intellect in the other? The following are at least some of them, perhaps all.

Appetites; propensities, including blind or involuntary imitation; affections; memory, and simple imagination, or the power of calling up mental pictures of individual material objects, both being manifested in the dreams of dogs; simple association, — as when a gesture or a rod suggests to an animal the pain of a previous whipping; and judgment in its simplest form or lowest function, resulting from the direct comparison of one material thing, observed at the moment, with another, — as when dogs and cats judge correctly the height or distance which they can safely leap, or the size of the orifice that will admit the passage of their bodies.

Neither Intellect nor Instinct is necessary for the *action* of the appetites, impulses, or affections; though one or the other is needed to obtain the means of gratifying them, and to control them, or to keep down their action when their demands are inordinate or obstructive to the attainment of some higher end. Though these impulses are determinate, or point to certain objects to the exclusion of others, such determination is not the result of comparison and deliberate choice, such as is exercised by the Intellect; but it is the necessary result of the constitution of the being in whom certain propensities are implanted to the exclusion of others. Neither Instinct nor Intellect causes the determination to one kind of food rather than another, or the preference of one class of sounds to another; we can only say, that the palate and the auditory nerve are so constituted as to give pleasure in the one case, and pain or disgust in the other. Such preferences and dislikes are no more indications of thought and purpose on the part of the animals which feel them, than is the persistent pointing of the magnetic needle to the poles, when compared with the indifference of unmagnetized needles as to their position. Mere affection attaches the human mother to her child, or the bird to her own offspring, rather than to the young of other animals; and, the attachment existing, reflection or Instinct teaches it *how* to feed and protect them. In like manner, sympathetic or unconscious imitation, which has been classed with the propensities, is also common to man and the brute, and is equally irrational or independent of thought in both. Thus, to borrow an example from Adam Smith, when a rope-dancer is performing a perilous feat, the spectators writhe and twist their bodies, accommodating their motions to what they suppose to be necessary for the acrobat's safety. And the amount of this sympathetic action is proportioned to the *absence* of thought, or to the degree in which they give themselves up to the impulse of the moment. If they are cool enough to reflect on the nature of the case and the proprieties of the occasion, they sit still. So the monkey, the parrot, and the mocking-bird spontaneously and blindly repeat movements and sounds, the purpose and meaning of which they are certainly ignorant of. The parrot can easily be taught to articulate, but not to talk, — that is, to utter words at the right moment through a perception of their meaning. Man can imitate rationally, or with a distinct cognition at the moment of the purpose to be obtained by the repeated act; but the monkey cannot.

If those mental endowments which have now been shown to be possessed in common by the human, and at least a part of the brute creation, be examined, in order to discover, if possible, some criterion or general characteristic whereby they are distinguished both from Instinct and Intellect, it will appear that the former, so far as they are exercised by the lower animals, relate only to particular cases and individual objects, while Intellect necessarily involves some power of generalization, and of drawing inferences from general principles. To adopt a distinction familiar to psychologists, the former are concerned only with *Intuitions*, while the latter requires the exercise of *Thought*. Animals can *judge* only of the object that is actually before them. This or that one thing they can perceive, remember, like or dislike, associate with some other one thing, and judge whether it will satisfy a present want. But they cannot form classes of things; they cannot generalize their experience, and thus form premises from which general conclusions can be drawn. This would be to exercise *Reason* properly so called; and Reason is a function of Thought. Consequently, animals cannot *consciously* combine means for the attainment of a future object, and therefore their modes of operation are never altered or improved. They cannot even anticipate the future, or foresee future wants; for this can be done only through a generalization of past experience.

This theory explains at once the most striking deficiency of the lower animals, — their incapacity of using language. As they have only Intuitions, the only words which they can apply or understand are Proper Names, — the appellations of this or that particular thing. These they *can* understand. A dog can easily be taught to recognize the name of his master, even when pronounced by another person. They can even be taught to recognize the names of particular places and buildings, so that they will understand and obey when they are told to go to *the barn*, *the river*, *the field*, or *the house.** But it is always *the particular barn*, or other object, with which they have been taught to associate this sound or significant gesture as its Proper Name. Carry the animal to a distant place, near which may be a set of corresponding objects, and then tell him to go to *the barn* or *the river*, and he will not understand the order as applying to the new set of objects, but will set off immediately for the old building or place with whose Proper Name alone he is familiar. In like manner, they can be taught by a particular word, or gesture, to repeat a certain movement, or perform a particular act, as when ordered to bark, to lie down, to watch, or to go out; by frequent repetition, the sound of this particular word has become to them the Proper Name of this particular act, the union of the two being a simple association, like that which connects a rod with the idea of a whipping. But of course, with Proper Names only, we could not frame a sentence or express any connected meaning. Words, properly so called, are *general names*, expressive of Thoughts, or whole classes of things; and brutes have no Thoughts to express, this being the peculiar attribute of Reason.

Now, as Intuitions alone will not enable animals either to foresee future emergencies, or to combine means so as to provide for them, there must be some provision to remedy this deficiency, or the different races would speedily became extinct. Habitations must be constructed; food must be procured by complex contrivances of nets and stratagems; supplies must be stored up against an approaching winter; elaborate provision must be made for the birth and nurture of offspring. Man is endowed with Intellect, which fully answers all these exigencies. The uniformity of nature's laws makes the observation of the past a mirror which images the future; and the same generalization of experience through the power of Thought enables him to combine the necessary means of satisfying the wants thus foreseen. The gift of language, which, as has been shown, is a consequence of the endowment of Thought, multiplies indefinitely the instructive power of individual experience, by making it virtually coextensive with the multiplied and various experience of the whole race. Instruction is the communication of other people's experience and the results of their ingenuity, and Intellect is entirely dependent upon instruction and personal observation. Without their aid, or without the uniformity of nature's laws, which lends them all their efficiency, it would be powerless as a means of providing for the future.

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* In Mr. Lockhart's amusing account of Sir Walter Scott's first favorite dog, Camp, he says: "As the servant was laying the cloth for dinner, he would address the dog lying on his mat by the fire, and say, 'Camp, my good fellow, the Sheriff's coming home by the ford, — or by the hill,' and the sick animal would immediately bestir himself to welcome his master, going out at the back door or the front door, according to the direction given, and advancing as far as he was able."

Instinct is an impulse, conceived without instruction and prior to all experience, to perform certain acts, which, in themselves considered, are not immediately agreeable to the agent, but are generally laborious and even painful, and which are useful only as means for some future end, this end being commonly one of pre-eminent importance or necessity, either for the preservation of the animal's own life or the continuance of its species. Instinct appears in the accomplishment of a complex act, (the building of a nest, net, or cell, or the capture of prey by a stratagem,) which man certainly could not perform without Thought, or Intellect properly so called; that is, without experience or instruction, the observation of effects, the induction of a rule or law from them, and the consequent choice and adaptation of means to ends. It has been said that man is not *more* intelligent, but *otherwise* intelligent, than the lower animals. This is hardly correct, for animals, properly speaking, are not intelligent at all. As has been shown, they are incapable of Thought. Instinct appears in them as a substitute for Intellect, not as a lower degree of it. Both the human and the brute creation have Intuitions; but these Intuitions being wholly insufficient to answer all the exigencies of either, they are supplemented, in the one case, by Thought acting through experience, and in the other, by Instinct, which is altogether independent of experience. Within its narrow sphere, Instinct is certainly superior to Intellect; for it is infallible, and the perfection of its work man cannot imitate. Man does his work ill, better, well; the animal always does his perfectly. But Instinct is blind, unchangeable, and narrow, or limited to a very few ends; so that the same animal, while working within its appointed sphere, often appears as a miracle of wisdom; but when forced to attempt anything outside of that sphere, it reappears in its true character as a mere brute. Intellect, on the other hand, is fallible, conscious of itself, discursive or even infinitely varied in its applications, and perfectible by small degrees. The unchangeableness of Instinct appears in this fact, that the nest of the bird, the cell of the bee, and the web of the spider are reproduced after the same form as rigorously as the flower and fruit of a plant.

If the view now taken is correct, the answer to our third question is obvious. It is impossible that Instinct and Intellect should ever be conjoined, or found to exist together in the same being, whether in the brute or in man. We cannot even imagine Reason acting without self-consciousness, or looking into the future without the guidance of experience or instruction, or making accurate and sufficient provision for future wants without foresight of those wants, and without conscious adaptation of its means to its ends. It is needless to bring together instances of curious, complex, and far-reaching instincts, such as those of the bee, the spider, and the migratory bird, wherewith to excite man's wonder. Every instance of Instinct, even the simplest, is marvellous to him, for it is incomprehensible. Man must *learn* to perform even the simplest acts by slow degrees, after many efforts, many mistakes and failures, and generally with much guidance. He must learn to walk. He must learn to select his food. He must even learn to see, for nothing is more certain than his inability, by the first use of his eyes, to determine either the distance, position, or magnitude of any object whatever. On the other hand, the newly dropped lamb or colt walks with ease, avoids any obstacles that may be in its way, and goes directly to the dugs of its dam, whence alone it can obtain its proper food. Whose hand guides it at once to this source of nourishment, when imitation would certainly lead it to crop the herbage, like its parents?

Another fact is worthy of notice as establishing a fundamental difference between these two faculties. Insects, and the Articulata generally, which have no brain properly so called, show more complex and surprising instincts than the Vertebrata; whence we infer that Instinct is independent of a brain, while Intellect certainly exists in very close relation with that organ.

The only actions of man which seem to have any claim to be considered as instinctive, are those prompted by the feeling of modesty or shame. This feeling itself is not an instinct, any more than the emotions of pride, emulation, or anger. But the actions to which it points are not merely natural manifestations of strong emotion, but are peculiar and definite, as if devised by reason for the attainment of a specific purpose. All the lower animals gratify each of their appetites, as nature prompts, without stint, and without any apparent desire of cover or concealment. Man alone gratifies one of them only with every precaution of secrecy, and carefully provides a covering, not needed for the purposes of protection or warmth, for certain portions of the body. No tribe of savages has ever been discovered so rude and debased as to manifest complete indifference respecting such precautions and coverings. The adult females are always provided with some clothing, however slight, the arrangement of which indicates the purpose for which it is worn; and if, in a very few instances, adult males are found unprovided with similar coverings, there is reason to believe that extreme poverty rather than indifference is the cause of the neglect. The fact, that children under the age of puberty are often suffered to go entirely nude, also indicates the purpose of the covering. However slight the garment may be, — a mere girdle with the natives of the South Pacific islands, or a narrow cloth around the loins, as with the savages of Central Africa, — travellers relate that it is guarded with much care and jealousy, and that the removal of it seems to cause as much pain and shame as would result from entire exposure among more civilized races. Reason and experience could not have indicated to savages the necessity or propriety of this slight covering; as no reason can be assigned for it, apart from the sacred instinct by which it is peremptorily enjoined. If this be an instinct, it is one which, unlike all other instincts, does not conduce to the preservation, — that is, to the physical safety, — either of the individual or of the race. Man might live in this respect as the brutes do, and live as long and as well. Call it instinct, propensity, or what we may, the only conceivable purpose for which it was implanted in man is a moral purpose, as a safeguard for the right development of his ethical nature. Hence it is, that the entire loss of it, which sometimes results from extreme profligacy, is shown by experience to be equivalent to utter moral degradation. This view of the subject, it may be added, derives some weight from the allusion to it in the history of our first parents, whether that history be regarded as revelation or tradition. Man has no instincts to keep guard over his physical well-being; reason enlightened by experience, and stimulated by affection, is abundantly sufficient for this end. But a moral instinct, indispensable for the preservation of the purity of his life, and thus auxiliary to conscience, is his never-failing endowment.

Remarks and criticisms upon Mr. Bowen's views were offered by the President, Dr. Bowditch, Professors Wyman, Parsons, Gray, and others; — to the general purport that the distinction in kind between instinct and intellect was generally, if not universally, admitted; the instinct of the human infant to the breast was insisted on; also that the young of animals learn to walk and use their limbs, to judge of distances, &c.; and as to memory, imagination, or the power of reproducing the sensible past in mental pictures, desires and affections, such as were conceded to the higher brutes, these are desires or affections of the mind, and, if not instinctive, presuppose intelligence; and, moreover, that to concede to animals the power of comparison and simple judgment is to concede to them intellect, — since all reasoning, according to the philosophical logicians, and even perception, may be analyzed into simple judgments, — thus bringing the question to one concerning the degree of manifestation of intellect, and as to what may be superadded to simple intellect in man. To the hypothesis which denies thought to the higher brute animals, was preferred the current hypothesis, that animals think, but that man alone thinks that he thinks.

Four hundred and ninetieth meeting.

January 8, 1861. — MONTHLY MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read letters from President Barnard of the University of Mississippi, Professor Whitney